

DOCUMENT RESUME

ED 292 283

EC 202 066

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TITLE Perceptual and Emotional Effects of Assuming a Disability.
PUB DATE 87
NOTE 35p.; Paper presented at the Annual Conference of New England Educational Research Organization (Stratton, VT, 1987).
PUB TYPE Reports - Descriptive (141) -- Speeches/Conference Papers (150)
EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Adaptive Behavior (of Disabled); *Attitude Change; *Counselor Attitudes; *Disabilities; Empathy; Etiology; *Handicap Identification; Higher Education; Rehabilitation; Role Playing; *Simulation; Social Bias; *Student Teacher Attitudes

ABSTRACT

The effects of assuming a disability in changing attitudes towards persons with disabilities were assessed in 18 undergraduate students who were enrolled in an introductory rehabilitation counseling course. The subjects were instructed to engage in two levels of assumed disability (one-hand bound and two-hands bound) in three settings (private dinner, public dinner, studying in a library). Before beginning the sequence of assumed disability tasks, subjects judged pairs of 15 disabilities on a nine-point similarities scale and completed 11 attribute rating scales of the same disabilities. Both measures were readministered after all six tasks were completed. Appraisal ratings and mood adjective checklists were completed immediately after each assumed disability task, resulting in six assessments. Results support a three-dimensional (Visibility, Functional-Organic, and Severity) scaling solution of rehabilitation student's perceptions of 15 disabilities. The only significant shift from pretest to posttest occurred in the Functional-Organic dimension. The students placed more importance on the etiology of disabling conditions after undergoing the assumed disability tasks. The findings also support the assumption that cognitive changes resulting from assuming a disability are due to the threatening nature of the task, but threat need not involve negative affect. (Author/VW)

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Perceptual and Emotional Effects of Assuming a Disability

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Abstract

The effects of assuming a disability on rehabilitation students' perceptions of disabilities were assessed. Students participated in three different situations; private dinner, public dinner, and studying in a library, at two levels of assumed disability, one-hand and two-hands bound. Application of multidimensional scaling to direct similarity judgments of 15 disabilities produced three salient perceptual dimensions labelled: Visibility, Functional-Organic, and Severity. Comparison of the three-dimensional solution with the perceptual dimensions obtained by Rounds (1986) provided evidence for the external validity of all three dimensions. The second dimension, Functional-Organic, was most affected by the assumed disability task, indicating that there was a change in importance of students' perceptions in distinguishing between functional or organic origins of the disability. Assessment of cognitive and affective responses to the assumed disability task indicated that there was a relationship between the setting, the level of assumed disability, and the degree to which the activity was perceived as challenging and threatening. Likewise, the appraisal ratings of threat, control, and challenge correlated with Dimensions I, II, III respectively. The relationship between an assumed disability task, perceived discomfort of that task, and perceptions of disabilities are discussed.

Perceptual and Emotional Effects of Assuming a Disability

Research in the area of attitudes toward disabled persons indicates that professionals in the rehabilitation field maintain stereotypic beliefs similar to those held by the general public (Goodyear, 1983; Green, Kappes, & Parish, 1979; Katz, Kravetz, & Karlinsky, 1986; Parish & Copeland, 1978). Stereotyping may produce a narrow range of role expectations for those who are disabled which can lead to restrictions of their behaviors and opportunities (Altman, 1981). The focus of the present paper is on methods that are designed to alter the attitudes of students in rehabilitation fields. In particular, assuming a disability, a strategy that is a frequently used to sensitize rehabilitation and special education students to the effects and consequences of disabilities (Wright, 1983), will be examined.

Attitudes toward disabled persons have been shown to vary with demographic variables (e.g. Elston & Snow, 1986; Strohmer, Grand, & Purcell, 1984), personality (e.g. Durfee, 1971), type of disability (e.g. Goodyear, 1983, Janicki, 1970; Strohman et al., 1984), and social context (e.g. Katz, Kravetz, & Karlinsky, 1986). These findings, however, have not lead to a clearer understanding of the process of attitude change (Yuker, 1986 and Strohmer, Grand, & Purcell,

1984). Studies that directly investigate the process of attitude change were recently reviewed by Donaldson (1980). In reviewing this literature, she classified interventions tailored to change attitudes toward disabilities into the following categories: attitude change through contact or exposure, information providing, and role playing strategies.

The category receiving the most attention in the literature is attitude change through contact or exposure (e.g. Langer, Fiske, Taylor, & Chanowitz, 1976). Contact with a person who is disabled can be structured or unstructured, live or audiovisual. It is the structured, live situations, however that produce the most positive attitude change in nondisabled individuals (Donaldson, 1980). The second type of strategy, information providing, is based on the assumption that increased knowledge will alter stereotypic beliefs and misconceptions that are often held by people. (e.g. Evans, 1976; Dailey & Halpin, 1981; Safran & Safran, 1986).

The third type of intervention tailored to change attitudes uses simulation or role playing strategies as the impetus for change. Although several studies have integrated role playing into an educational format (Ibrahim & Herr, 1982; Orlansky, 1979), only two studies have attempted to examine the effects of in vivo simulations of specific disabilities. The first study of this type was

conducted by Wilson and Alcorn (1969) and allowed subjects to choose between four disabling conditions; a) blindness (opaque bandages over both eyes), b) deafness (ear plugs), c) loss of dominant hand (can or box taped over hand, hand secured to body), or d) loss of lower limbs (wheelchair). The subjects simulated the disability for eight continuous waking hours and kept a log of their feelings and impressions in regards to assuming the disability. Analysis of pretest and posttest scores indicated that there was no significant difference between the experimental group and the control group on the Attitude Toward Disabled Persons (ATDP) Scale.

A later study (Clore & Jeffrey, 1972) found that subjects who travelled around campus in wheel chairs for one hour had a significantly more positive attitude change towards the disability they assumed then did the control group. Clore and Jeffrey also found that vicarious participation (watching the person in the wheel chair) produced almost equal amounts of attitude change as did actual participation in the simulation task. The active ingredient in simulation studies, according to Clore & Jeffrey is the situation in which reactions of nondisabled persons can be observed. In this type of investigation the underlying assumption is that the discomfort in the role playing situation, in addition to gained empathy, will help to alter the participants attitudes or perceptions about the

disabling condition.

Of the studies assessing the change in attitudes toward disabled persons reviewed by Donaldson (1980), there was almost an equal number of studies that measured a positive attitude change as there were studies that found no change or a negative attitude change as a result of intervention strategies. A possible explanation for these mixed results may be due to the method used to assess attitudes. One of the original and most widely used scales devised to assess attitudes towards disabilities was based on the assumption that attitudes consisted of one dimension; negativeness-positiveness (Yuker's Attitudes Towards Disabled Persons Scale, Yuker, Block, & Campbell, 1960). A number of studies have clearly indicated that attitudes (and perceptions) of disabilities are more accurately described by a multidimensional space (Livneh, 1985, 1983, 1982; Schmelkin, 1982; Altman, 1981).

Another difficulty with these attitudinal measures is that they are highly reactive. Research has indicated that nondisabled individuals hold more positive attitudes toward individuals with a disability than those attitudes held by individuals who were recently disabled (Comer & Piliavin, 1975). Measures assessing attitudes towards disabilities--such as The Attitude Toward Disabled Persons Scale--are susceptible to faking in the positive direction, at least by some people in some situations (Cannon & Szuhay,

1986; Yuker, 1986).

Schmelkin (1982) proposed that the use of MDS, which is less susceptible to a socially desirable response set, is one possible way to assess attitudes towards disabilities. Multidimensional scaling (MDS) has been a method primarily used in social perception and cognition research (Jones, 1983; Rounds & Zevon, 1983). MDS yields a graphic representation of an individual's perceptual space without a priori constraints on the respondent in terms of the boundaries or selection of those dimensions (for a nontechnical introduction to MDS see Davison, Richards, & Rounds, 1986; for a detailed description of MDS and its assumptions see Kruskal & Wish, 1978). In light of the shortcomings of attitude measures (e.g. susceptibility to faking, unidimensionality) MDS was used in the present study to assess perceptual changes resulting from an assumed disability task.

The purpose of this investigation is to examine the relationship between reactions to an assumed disability task and how disabilities are perceived. Perceptual dimensions used by rehabilitation students to distinguish fifteen disabilities were assessed using individual differences multidimensional scaling. The same students participated in a series of six assumed disability tasks in which cognitive appraisals and emotional responses were assessed after each of these tasks.

Methods

Participants

Participants were 18 undergraduate students (15 females; 3 males) who were enrolled in an introductory rehabilitation counseling course.

Disabilities

Criteria for selecting 12 of the disabilities (arthritis, emphysema, alcoholism, cerebral palsy, stroke, visual impairment, epilepsy, cancer, hearing impairment, schizophrenia, diabetes, and mental retardation) included frequent representation in the literature and high probability of being encountered by rehabilitation students during field work, practicum, or internships. The final three disabilities (sprained ankle, below elbow amputee, and dislocated shoulder) were selected on the basis of their similarity to the assumed disability task.

Measures

Similarity ratings. The similarities scale consisted of all possible pairs of the 15 disabilities (105 items) which were assessed on a nine-point scale from "Very Similar" to "Very Different".

Attribute ratings. The 11 attribute ratings were based on the scales used in a prior study investigating the perceptions of rehabilitation students (Rounds, 1986). These attribute ratings were designed to account for students' perceptions of disabilities. The 15 disabilities were rated

on severity, familiarity, employability, attractiveness, controllability, impact, identification, spread, functional-organic, visibility, and mental-physical (See Table 1 for a definition of these attributes). Each rating consisted of a seven-point bipolar scale.

Insert Table 1 about here

Mood checklist (MCL). The MCL consisted of 33 adjectives used in a number of prior investigations and selected in order to ensure a broad coverage of the domain of negative affect (Zevon & Tellegen, 1982). Subjects were asked to record how they felt at the time they filled out the checklist by endorsing the adjectives on a five-point scale, labelled; "very slightly or not at all", "a little", "moderately", "quite a bit", and "very much". In order to minimize position effect, two forms of the checklist were constructed by randomizing the sequence of adjective presentation. Negative affect scores were computed by summing across item endorsements for each dimension.

Appraisal ratings. After the participants completed each task they were asked to rate their feelings in regards to control, ("how much control did you have over what happened during this activity or event?") threat ("was this experience threatening to you?"), and challenge ("was this experience challenging to you?") on a five-point scale

labelled "not at all", "a little", "moderately", "quite a bit", and "very much".

Procedure

Subjects were instructed to engage in two levels of assumed disability (one-hand bound and two-hands bound) in three settings (a private dinner, a public dinner, and studying in a library) for a minimum of one hour, with the sequence of activities randomized across subjects. The assumed disability task consisted of binding one or both hands with a standard ace-bandage. The six tasks extended over a two week period. Before beginning the sequence of assumed disability tasks, subjects judged pairs of 15 disabilities on a nine point-similarities scale and also completed 11 attribute rating scales of the same disabilities. Both these measures were readministered after all six tasks had been completed. Appraisal ratings and mood adjective checklists were completed immediately after each assumed disability task resulting in six assessments.

Analysis

The similarities ratings were analyzed by an individual differences multidimensional scaling analysis (ALSCAL4; Young & Lewyskyj, 1979) to identify the dimensions used by the rehabilitation students in differentiating 15 disabilities. The MDS analysis produces a graphic representation of the disabilities where points closer in space represent disabilities that are perceived as more

similar. As a validity generalization check, these MDS stimulus coordinates were compared to the MDS stimulus coordinates obtained in the Rounds' (1986) study by submitting both MDS solutions to a canonical correlation analysis. Mean attribute ratings for each scale were correlated with the MDS stimulus coordinates to assist in the interpretation of the dimensions. The MDS subject (salience) weights from pretest and posttest were compared by using a matched pairs t -test to determine if there was a significant difference in the importance of each MDS dimension. Repeated measures multivariate analysis of variance was used to test differences in level of condition (one-hand bound, two hands bound) and setting (private dinner, public dinner, or public studying) for negative affect, and appraisals (threatening, controllability, and challenging). In addition, the MDS subject weights at posttest were correlated with the three appraisal ratings.

Results

MDS Solution

ALSCAL4 multidimensional scaling solutions were obtained in two through five dimensions. The Kruskal STRESS values were .284, .211, .165, .140, respectively. Since the STRESS index is viewed as a "badness-of-fit" index (stress increases towards 1.00 as the data are less well accounted for) adding the fourth and then the fifth dimensions resulted in approximately equal increments of improvement in

fit. This improvement in fit was smaller than the improvement obtained when the second and the third dimensions were added. An inspection of the three and four-dimensional solutions indicated that the one through three dimensions were most interpretable, and thus, a three-dimensional solution was retained. Figure 1 and figure 2 show the stimulus coordinates of Dimension I plotted against Dimension II and Dimension III respectively.

Insert Figure 1 and Figure 2 about here

Interpretation of Dimensions

An examination of Figure 1 indicates that Dimension I has more visible disabilities at the negative end (e.g. sprained ankle, dislocated shoulder, below elbow amputee), and less visible disabilities at the positive end of the dimension (e.g. schizophrenia, mental retardation, cancer). As indicated in Table 2, the zero-order correlation also supports this description as the attribute rating of visibility correlated significantly with Dimension I ($r = .74$; $p < .01$).

Insert Table 2 about here

Based on these results, it was decided to label Dimension I the "Visibility" dimension.

The attribute rating of Functional-organic correlated with Dimension II ($r = -.71$; $p < .01$), indicating that disabilities at the positive end were perceived as more functional (e.g. alcoholism, emphysema, diabetes) and disabilities at the negative end were considered more organic (e.g. cerebral palsy, stroke, epilepsy). Identification ($r = -.65$; $p < .01$), also correlated significantly with dimension II indicating that people with the disabilities at the positive end of the dimension were perceived as more identified with the disability. This dimension was labelled "Functional-Organic" to represent the two ends of the dimension.

The third dimension had disabilities that were more life threatening at the negative end (e.g. cancer, emphysema, diabetes) while the positive end tended toward disabilities that were not life threatening (e.g. visual impairment, mental retardation, hearing impairment). Attributes that correlated significantly with Dimension II were Spread or degree of impact ($r = .76$; $p < .01$), Employability ($r = -.84$; $p < .01$), Attractiveness ($r = .863$; $p < .01$), and Severity ($r = -.866$; $p < .01$). Dimension III can be viewed as the "Severity" dimension. Upon visual inspection "Attractiveness" is descriptive of this dimension, but Severity seems to encompass the other attributes that are

correlated with this dimension (see Table 3).

Validity Generalization

External validity of the three-dimensional solution was assessed by examining its relationship with the three-dimensional solution obtained in the Rounds (1986) study. Results from the canonical correlation yielded three significant canonicals; a large first canonical of .98 ($\chi^2 = 62.1$; $p < .001$) and slightly smaller second and third canonicals; .97 ($\chi^2 = 33.73$; $p < .001$), and .89 ($\chi^2 = 12.10$; $p < .001$), respectively. Dimension I, "Visibility", of the present investigation is highly correlated with Dimension 3, "Responsibility", of the Rounds' results, while Dimension II, "Functional-Organic" corresponds with Dimension 1, "Psychological-Physical" and Dimension III, "Severity" corresponds to Dimension 2, "Severity". Although the dimensions are labelled differently in two of these cases (Visibility/Responsibility; Functional-Organic/Psychological-Physical), the results suggest that the two solutions share a substantial amount of common variance (90.7%), and can therefore be considered similar.

Sallience of Dimensions

Figure 3 depicts the three dimensional solution of mean subject weights on the three dimensional solution for pretest and posttest. The weights reflect how important the dimensions were for the subjects when they judged the

similarity of the 15 disabilities. As shown in Figure 3, the relative subject weights shifted from pretest (Time 1) to posttest (Time 2) on all three dimensions with the only significant shift occurring on Dimension II ($t = 4.17$; $p < .05$).

The mean subjects weights for dimensions one through three for pretest and posttest were .51, .37, .38 and .55, .38, .35, respectively. These mean weights indicate that the subjects placed more weight on the first dimension at both pretest and posttests.

Insert Figure 3 about here

Mood and Appraisal Ratings

Table 3 displays the means and standard deviations for mood and appraisal ratings by the six assumed disability situations. Results of MANOVA's showed that the setting (private dinner, public dinner, or public studying) did not significantly alter the students' negative affect and challenge appraisal, but the setting did alter the students' threat appraisal ($F = 13.60$; $p < .01$). The level of assumed disability (one-handed or two-handed) did not significantly affect the students' negative affect, but it did alter the students' challenge ($F = 32.86$; $p < .01$) and threat appraisals ($F = 17.55$, $p < .01$). Examination of the individual contrasts showed that the most threatening and challenging

assumed disability condition was two-hands bound at a public dinner.

Insert Table 3 about here

The correlation of the mood and appraisal ratings with the subject weights for the three dimensional solution revealed that threat appraisal was significantly correlated with Dimension I ($r = -.49$; $p < .05$). Challenge appraisal was significantly correlated with Dimension II ($r = .52$; $p < .05$), and appraisal of controllability correlated significantly with Dimension III ($r = .53$; $p < .05$).

Discussion

Results from the present investigation support a three dimensional multidimensional scaling solution of rehabilitation student's perceptions of 15 disabilities. The three dimensions are labelled Visibility, Functional-Organic, and Severity, respectively. These dimensions are similar to the three dimensional solution found by Rounds (1986), suggesting that the results are at least generalizable across differing groups of rehabilitation students.

Although all three dimensions shifted from pretest to posttest, it is noteworthy that the only significant shift occurred for Dimension II. A shift in a dimension can be interpreted as a change in the salience of that dimension in

regards to differentiating the 15 disabilities. The Functional-Organic dimension became more important to the rehabilitation students after participating in the six assumed disability tasks. This finding indicates that undergoing the tasks may have induced a change in the students' reliance on the distinction between whether the etiology of the disabling condition was structural and organic in nature or whether the disability had a more functional cause (e.g. Emphysema is associated with smoking, Alcoholism is associated with drinking).

The Functional-Organic dimension poses some difficulties in regards to a descriptive label because the more accurate definitions of functional and organic connote a mind/body distinction which does not match the layout of the disabilities along this dimension. The perceptions of the students, however, do seem to coincide with a less stringent definition of the functional--organic distinction which refers to the causal factors of the disabling condition in a broader sense. Although the students placed more importance on the etiology of disabling conditions after undergoing the assumed disability tasks, the mean raw subjects weights indicated that the Visibility dimension was the most important dimension both before and after the tasks.

The three dimensions obtained can also be differentiated on the basis of the rehabilitation student's appraisals of how threatening, challenging or controllable they perceived

the assumed disability task to be. Students who perceived the assumed disability task as threatening placed less importance on the visibility of disabilities. Perhaps this finding reflects the students desire to appear less noticeable when in a situation that is particularly threatening. Challenge appraisals were related to Dimension III's (Severity) salience weights indicating that being challenged by the assumed disability task is related to the importance of the severity dimension. Being challenged by an activity could possibly coincide with an understanding of the obstacles and difficulties faced by persons who are disabled. Finally, appraisals of how much control the participants perceived to have over each activity were related with the second dimension, Functional-Organic. Thus, the more control students perceived to have over the disability task, the more the students relied on the causal aspects of disabling conditions to organize their perceptions.

As would be expected, the participants perceived the two-hand bound, public dinner situation as the most threatening and challenging. Students perceptions of how threatening each condition was demonstrated to be the most important in both the level and setting of the situation. Threat appraisals may be an important ingredient in changing individuals perceptions of disabled persons. This finding is especially important in light of the assumptions

underlying an assumed disability task. It is believed that an individual undergoing the simulation task will experience discomfort--especially in the presence of nondisabled individuals--and therefore his or her perceptions will be altered (Donaldson, 1980).

It is interesting that both controllability and negative affect were not altered by either the level of disability or the situation suggesting that, despite the increased perceptions of threat, control did not vary with the level of discomfort. This may explain Clore & Jeffreys' (1972) findings that vicarious participation in an assumed disability task produced attitude changes similar to those produced in participants who actually underwent the task. Perceptions of how much control the individual actually has over the situation may be more difficult to observe than the amount of threat involved with the situation. The stability of negative affect, however, is counterintuitive to the assumption stated previously; that discomfort must accompany change. Discomfort necessary to produce cognitive changes may consist of perceptions of threat only and not consist of negative affect. These findings are encouraging. If an assumed disability task can result in perceptual changes without the accompanying negative affect that sometimes is associated with discomfort, then the task itself may be viewed more positively.

The results suggest that role-playing or an assumed

disability task should be somewhat threatening to the individual, but need not produce negative affect. The students view of how controllable the situation is and how challenging the task is may play a role in altering perceptions, but perceptions of how threatening the task is play a greater role. Future research should focus on more threatening or less threatening disability tasks, a larger sample size, and the opportunity to compare experimental group changes to control group changes.

In sum, the present investigation suggests that an assumed disability task is an effective means for altering rehabilitation students' perceptions of disabilities. The findings offer some support for the assumption that cognitive changes resulting from undergoing an assumed disability task are due to the threatening nature of the task, but threat need not involve negative affect. In addition, the generalizability of the three-dimensional solution obtained speaks to the appropriateness of studying multidimensional perceptions of disabilities rather than unidimensional (positive/negative) attitudes.

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Table 1

Attribute Scales and Definitions

<u>Scale Label</u>	<u>Scale Definition</u>
Severity	Rank your perceptions of the severity of the disability (1 = most severe, 15 = least severe)
Familiarity	How familiar are you with this disability (1 = not familiar, 7 = very familiar)
Employability	How difficult it would be for a person with this disability to obtain and maintain full-time employment (1 = extremely difficult, 7 = not at all difficult)
Attractiveness	Ranking of how attractive you perceive a person with this disability (1 = most attractive, 15 = least attractive)
Controllability	The extent of control an individual has over the conditions which led to the disability (1 = complete control, 7 = very little control)

<u>Scale Label</u>	<u>Scale Definition</u>
Impact of Disability	What is the impact on the individual of each disability (1 = slight impact, 7 = extreme impact)
Identification	Degree to which outside observers would identify an individual with the disability (1 = completely identify, 7 = not identify at all)
Spread	Degree to which an individual's life would be "taken over" by this disability (1 = not taken over at all, 7 = completely taken over)
Functional-Organic	Which describes the disability best (1 = functional, 7 = organic)
Visibility	Degree of visibility of the disability itself (1 = visible, 7 = Invisible)
Mental-Physical	Which describes the disability best (1 = mostly mental disorder, 7 = mostly physical disorder)

Table 2

Correlations of Three-Dimensional Coordinates with Attribute Ratings

<u>Attribute</u>	Dimension		
	1	2	3
Severity	-.070	.286	-.866**
Familiarity	-.068	-.132	-.422
Employability	-.108	-.095	-.839**
Attractiveness	-.094	-.034	.863**
Daily Living Tasks	.175	-.014	-.674*
Controllability	-.207	-.011	.495
Impact	.248	-.067	.643**
Identification	.518	-.645**	.179
Spread	.308	-.004	.762**
Functional-Organic	.053	-.711**	.235
Visibility	.736**	-.299	.417
Mental-Physical	-.347	-.470	-.741**

* $p < .05$. ** $p < .01$.

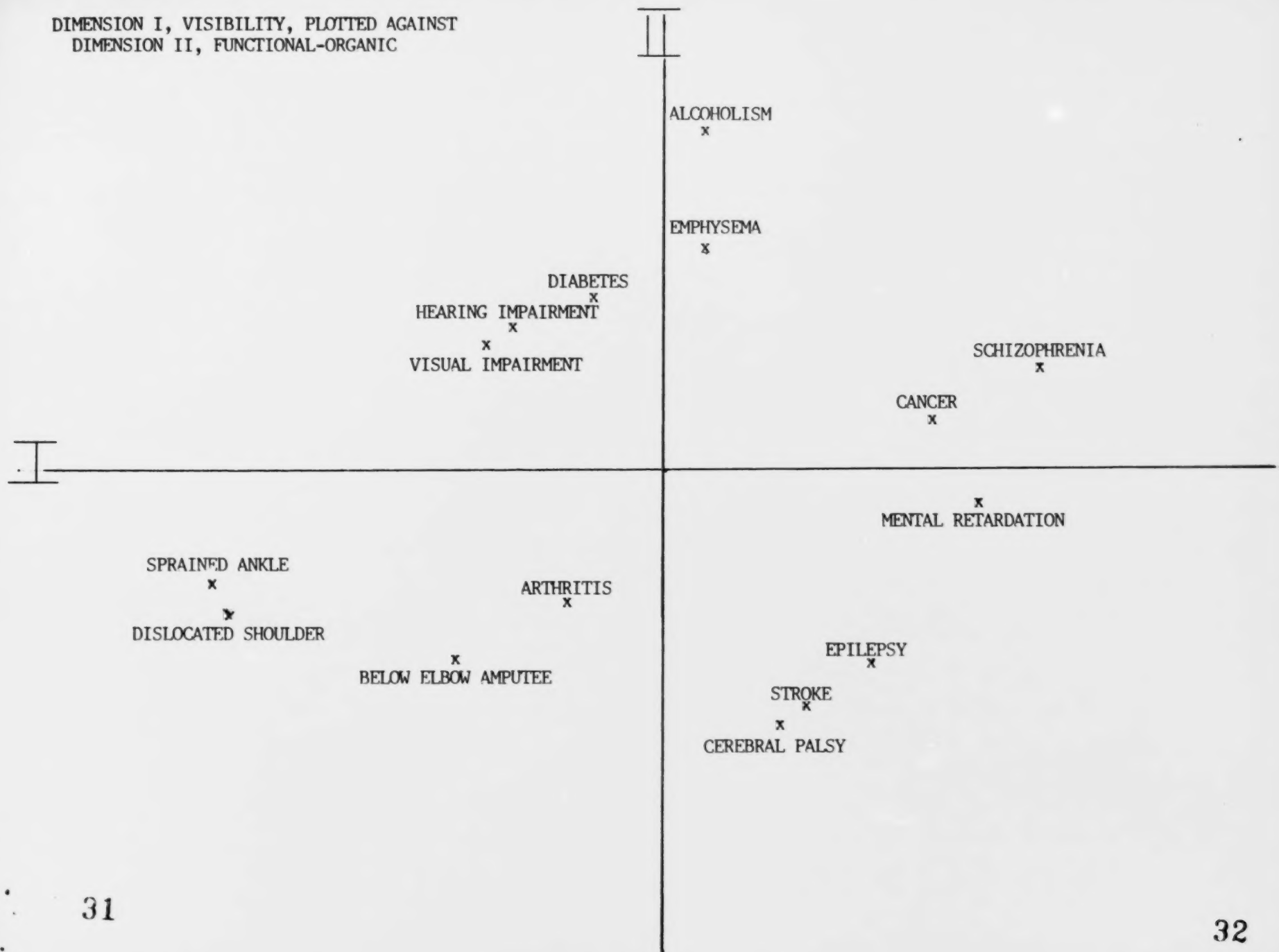
Table 3

Means and Standard Deviations for Selected Postassessment Variables by Assumed Disability Condition

		One-Hand			Two-Hand		
		1	2	3	1	2	3
Variable							
Negative	Mean	42.90	45.05	43.20	47.50	45.44	41.61
Affect	S.D.	(7.22)	(7.86)	(5.70)	(15.35)	(10.28)	(9.67)
Challenge	Mean	2.33	2.44	1.89	3.56	3.61	3.57
	S.D.	(.84)	(1.09)	(.68)	(1.04)	(1.09)	(1.04)
Threat	Mean	1.50	1.61	1.50	2.39	2.84	2.50
	S.D.	(.92)	(.92)	(.52)	(1.29)	(1.20)	(1.30)
Control	Mean	3.22	3.17	3.44	2.22	2.39	2.44
	S.D.	(.88)	(.79)	(.92)	(1.11)	(.99)	(1.04)

Note. 1 = Private Dinner; 2 = Public Dinner; 3 = Public Studying

DIMENSION I, VISIBILITY, PLOTTED AGAINST
DIMENSION II, FUNCTIONAL-ORGANIC



DIMENSION I, VISIBILITY, PLOTTED AGAINST
DIMENSION III, SEVERITY

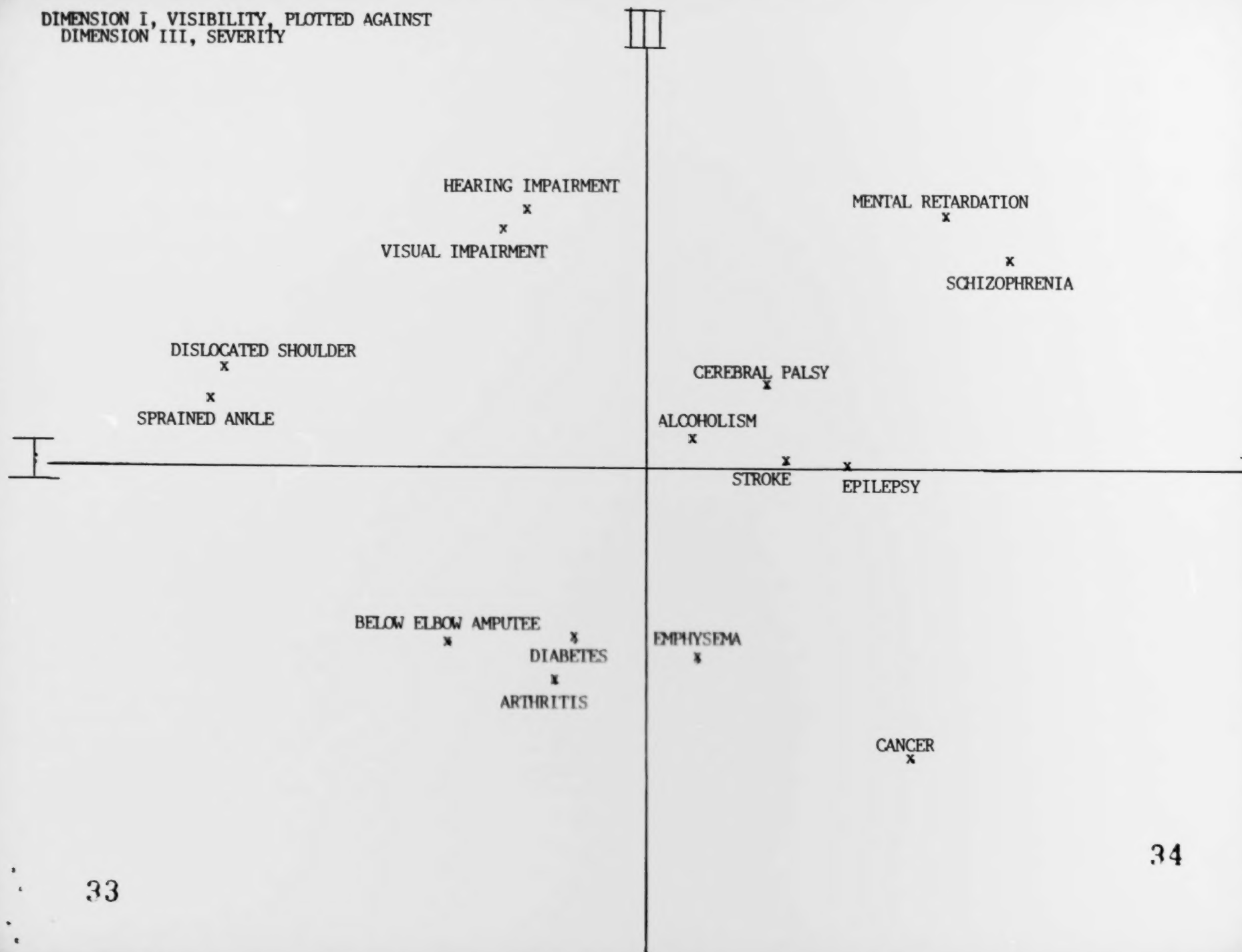


FIGURE 3

Mean Subject Weights by Dimension

